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10/748,734	12/30/2003	Ken Nakahara	88519.0001	7543
26021	7590	03/07/2006	EXAMINER	
HOGAN & HARTSON L.L.P. 500 S. GRAND AVENUE SUITE 1900 LOS ANGELES, CA 90071-2611			MONDT, JOHANNES P	
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Please find below and/or attached an Office communication concerning this application or proceeding.



## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of Species 1 (Figure 2, embodiment 1) in the reply filed on 12/02/05 is acknowledged. Examiner acknowledges the statement by applicant that claims 1-6, 8-15 and 17-25 read on the elected Species 1. However, *claims 20-25 were found not to read on the elected species* (Species 1 (Figure 2) for the same reason that claims 7 and 16 do not read on the elected Species: the Mg-doped ZnO film as recited therein overlies the side surfaces of the ZnO layer or transparent ZnO electrode. Therefore, in addition to claims 7 and 16 claims 20-25 have been withdrawn from consideration.

### ***Information Disclosure Statement***

The examiner has considered the items listed in the Information Disclosure Statement filed 9/9/05. A signed copy of Form PTO-1449 is enclosed with this office action.

### ***Response to Amendment***

Amendment filed 8/26/05 and the Information Disclosure Statement (IDS) filed 9/9/05 filed under 37 C.F.R. 1.97(c)(2) (first office action on the merits having been mailed 3/30/05 hence earlier than submission of said IDS on 9/6/05, and with fee being paid, hence ad (2) under 37 C.F.R., 197(c)), together with the response filed 12/02/05 to the election requirement mailed 11/14/05 form the basis for this office action. In said Amendment applicant newly added claims 2-25, of which claims 1-6, 8-15 and 17-25

are elected (see above under "Election/Restrictions"). Comments on Remarks submitted with said Amendment are included below under "Response to Arguments".

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. ***Claims 1-3, 6, 8, 10-12, 15, 17 and 19*** are rejected under 35 U.S.C. 102(b) as being anticipated by Kawasaki et al (6,057,561) as made of record in IDS filed 9/9/05.

*On claim 1:* Kawasaki et al teach a transparent electrode comprising: a ZnO layer 6; and a Mg-doped ZnO film 7 formed on the ZnO layer 6 (col. 13, l. 22-28 and Figure 31).

*On claim 2:* Kawasaki et al teach a transparent electrode 6/7/8 (Figure 31 and col. 13, lines 19-28) comprising a ZnO layer 6, an Mg-doped ZnO film 7 formed on the ZnO layer (see Figure 31).

*On claim 3:* the ZnO layer is formed on a semiconductor layer 2 (col. 13, lines 22-28).

*On claim 6:* the Mg-doped film overlies an upper surface of the ZnO layer (Figure 31).

*On claim 8:* a first metal pattern 8 is formed on the Mg-doped ZnO film (col. 13, lines 22-28 and 45-51).

*On claim 10:* the Mg-doped ZnO film 7 covers the upper main surface of the ZnO layer. The latter would otherwise be exposed to the environment. Therefore, the Mg-doped ZnO film 7 has the capacity to improve acid resistance of the transparent electrode. Furthermore, in reference to the claim language referring to “improves acid resistance of the transparent electrode”, intended use, in this case the use as a protection against acids, and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963).

*On claim 11:* the semiconductor layer 2 is formed on a substrate 1 (col. 13, lines 22-28 and Figure 31).

*On claim 12:* Kawasaki et al teach a light-emitting device (title, abstract, col. 1, lines 5-10, Figure 31) comprising: a semiconductor layer 2 formed on a substrate 1 (col. 13, lines 22-28); a ZnO transparent electrode 6 (loc.cit.) (N.B.: ZnO is inherently transparent, and the ZnO layer 6 is conductive through p-type doping (loc.cit.) and in contiguous connection with the outermost electrode 8, and hence meets the limitation “transparent electrode”); and a Mg-doped ZnO film 7 formed on the ZnO transparent electrode (loc.cit.).

*On claim 15:* the Mg-doped film 7 overlies an upper surface of the ZnO transparent electrode 6 formed on the semiconductor layer 2 (Figure 31).

*On claim 17:* a first metal pattern 8 is formed on the Mg-doped ZnO film (col. 13, lines 22-28 and 45-51).

*On claim 19:* the Mg-doped ZnO film 7 covers the upper main surface of the ZnO layer. The latter would otherwise be exposed to the environment. Therefore, the Mg-doped ZnO film 7 has the capacity to improve acid resistance of the transparent electrode, and hence of the light-emitting device. Furthermore, in reference to the claim language referring to "improves acid resistance of the light-emitting device", intended use, in this case the use as a protection against acids, and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. ***Claims 9 and 18*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasaki et al as applied to claims 3 and 12, respectively, in view of Lan et al (US 2004/0079947 A1).

*As detailed above, Kawasaki et al anticipate claims 3 and 12. Kawasaki et al also teach an n-type electrode 3 formed on the semiconductor layer 2 (see Figure 13 and col. 31, lines 22-28).*

*Kawasaki et al do not necessarily teach said n-type electrode to be a metal pattern.*

*However, it would have been obvious to include that said n-type electrode be a metal pattern in view of Lan et al, who, in a patent application drawn on a light-emitting device with transparent electrode, hence analogous art, teach the selection of a metal pattern 323 for said n-type electrode on top of and in contact with transparent electrode 321 (see [0018] and Figure 3).*

*Motivation to include said teaching in said invention at least derives from the excellent electric conductivity of metal as known by those of ordinary skills throughout the electrical art.*

#### ***Allowable Subject Matter***

***Claims 4-5 and 13-14*** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: both MgO and ZnO are known to protect against corrosion. But they were found enumerated equivalently in this regard; see for instance Uemura et al (US 2001/0028062) (see pars. [0030] and [0062]). The only ZnO/Mg-doped ZnO transparent electrode stack found to date is by Kawasaki et al (6,057,561) as cited above and as made of record by applicant through IDS submitted

9/6/05. Application to GaN-based light-emitting device art of Kawasaki et al is not obvious because Kawasaki et al attempts to provide an alternative and teach against III-V light-emitting devices (col. 1, l. 1).

### ***Response to Arguments***

Applicant's arguments, see Remarks in Amendment, filed 8/26/05, with respect to the rejection of claim 1 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration and in light of the Information Disclosure Statement submitted 9/6/05, a new ground of rejection is made in view of Kawasaki et al (6,057,561) as made of record in said IDS. Newly added claims 2-6, 7-15 and 17-19 have been considered at the earliest possible time, while claims 7, 16 and 20-25 have been withdrawn from consideration as being drawn to non-elected Species 2 rather than elected Species 1 (see "Elections/Restrictions" above).

### ***Conclusion***

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 9/6/06 prompted the new ground of rejection for claim 1 presented in this Office action. All other claims submitted are newly added by said Amendment filed 8/26/05 (i.e., after the first office action on the merits mailed 3/3/05). Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).



A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P. Mondt whose telephone number is 571-272-1919. The examiner can normally be reached on 8:00 - 18:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack W. Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM  
February 17, 2006

  
JACK KEITH  
SUPERVISORY PATENT EXAMINER